

60. (New) The method of claim 58 wherein the ligand is less than 1000 daltons in size.

61. (New) The method of claim 58 wherein the ligand is less than 750 daltons in size.

62. (New) The method of claim 58 wherein said target protein is a protease.

63. (New) The method of claim 58 wherein said target protein is a kinase.

64. (New) The method of claim 58 wherein said target protein is a dephosphorylase (phosphatase).

65. (New) The method of claim 58 wherein said target protein is a TNF receptor.

66. (New) The method of claim 58 wherein said target protein is mdm2 receptor.

67. (New) A mass spectrometer comprising a protein-ligand conjugate comprising a ligand less than 2000 daltons in size, that binds covalently to a chemically reactive group at a site of interest on a target protein to form a target-protein ligand conjugate.

68. (New) The mass spectrometer of claim 67 wherein the ligand is less than 1500 daltons in size.

69. (New) The mass spectrometer of claim 67 wherein the ligand is less than 1000 daltons in size.

70. (New) The mass spectrometer of claim 67 wherein the ligand is less than 750 daltons in size.

71. (New) The mass spectrometer of claim 67 wherein the ligand is released from the target protein within said mass spectrometer.

72. (New) A mass spectrometer comprising a protein-ligand conjugate wherein the ligand is less than 2000 daltons in size and is covalently bonded to the protein by a disulfide bond.

73. (New) The mass spectrometer of claim 72 wherein the ligand is less than 1500 daltons in size.

74. (New) The mass spectrometer of claim 72 wherein the ligand is less than 1000 daltons in size.

75. (New) The mass spectrometer of claim 72 wherein the ligand is less than 750 daltons in size.

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76. (New) The mass spectrometer of claim 72 wherein the ligand is released from the target protein within said mass spectrometer.

77. (New) A non-oligomeric ligand less than 2000 daltons in size, that binds covalently to a chemically reactive group at a site of interest on a target protein to form a target protein-ligand conjugate, identified by detecting the formation of said protein-ligand conjugate and identifying the ligand present in said conjugate by subjecting said conjugate directly to mass spectrometry analysis.

78. (New) The ligand of claim 77 wherein the ligand is less than 1500 daltons in size.

79. (New) The ligand of claim 77 wherein the ligand is less than 1000 daltons in size.

80. (New) The ligand of claim 77 wherein the ligand is less than 750 daltons in size.